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Vol. V LANCASTER, PA., OCTOBER, 1914 No. 2

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OF THE

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EDITORIAL.

The 1915 Meeting.—The Council at the Princeton meeting voted to hold the 1915 meeting in the middle west. A letter ballot of the Council selected Ames, Iowa, the home of Dean Anson Marston, president of the Society, as the meeting place

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and the dates June 22, 23, 24 and 25. Forty per cent. of the members reside west of the Mississippi River. The location is, therefore, convenient to more than half of the members and affords an excellent opportunity for the men in the west to attend the annual meeting. It also affords the opportunity to those members residing in the east to visit the west and become familiar with some of the engineering schools which have made that section of the country famous. A local committee has been appointed. The Program Committee is at work on the program. All indications point to a great meeting at Ames.

Attendance at Conventions.—The attendance of teachers at conventions is becoming a more and more important feature of every good teacher's work. The reactions of the Princeton meeting of the S. P. E. E., published in the September number of the BULLETIN, show clearly that one of the most important features, if not the cream of the whole convention, is the opportunity offered those attending to become acquainted with men who are doing exactly what they are doing but in a different way, and thus secure the best that the country affords in each line of teaching. It is a fact worthy of notice, that those teachers who are best known in engineering are just those who are the most consistent in attendance at conventions.

It seems to the editor that no young teacher can possibly afford to stay away from a convention, if we consider only the financial side of the question. Take for instance the S. P. E. E.'s annual convention, an increasing number of deans and college presidents are attending these meetings in order that they may meet other deans and also teachers and discuss with them personally the coming year's appointments.

Again a much larger number of institutions each year are sending representatives at the expense of the institution to represent them at the annual meetings.

College Administration.—The paper of Mr. McKnight, treasurer of the Pennsylvania Lines West, appearing in this number of the BULLETIN, is one of the papers presented at the

session of the Princeton meeting which was in charge of the Committee on College Administration. It has been the misfortune of many colleges in this country to have the instructors in these colleges pay slight attention to anything outside of their own field. It is well once in a while to call the attention of teachers to the fact that there are other important departments of a college which must be properly conducted if the institution as such is to exist at all. The paper of Dr. Mann, also presented at this session, speaks of a number of unfortunate elements which have developed in college administration. Many of us have suffered from an administration such as Dr. Mann condemns. However, there are many signs which indicate that the day has arrived when good teaching will be considered equally as important as research.

WHAT A TECHNICAL EDUCATION COSTS AT THE W. P. I.*

The decision to attempt this study grew out of a conversation which the writer had with a member of the class of '14. When he was asked whether he thought the men of his class, for the interest which the facts might have for themselves and for the value they might have for all concerned with the problem of technical education, would be willing to answer some searching questions as to what their course at the Institute had cost, he replied: "I'm sure they would, for the fellows are tired of seeing that statement in the catalogue, year after year, that the expense can be kept under $450.00."

The matter was broached to the class, and they acted promptly by appointing a committee who, together with the writer, worked out a questionnaire. The data sheets when filled out, were sealed in uniform envelopes addressed to the

* *Editor's note:* This is an abstract of an article by Mr. George H. Haynes which appeared in the *Worcester Polytechnic Institute Journal.* It is printed here because of the interest in connection with the following article on the cost at the University of Oklahoma. In making any comparisons it must be noted that the latter does not include tuition.

Journal, and then placed in other envelopes bearing the individual's name. The committee opened these, and delivered the sealed envelopes to the writer.

This guarantee that the information should be treated as confidential called forth a cordial response. Of the 85 men regularly enrolled in the class, 65 turned in statements. Most of these bear evidence of having received not a little time and thought in their preparation. The man whose expense account is heaviest put this note upon his statement: "These figures are nearly absolutely correct—no guesswork—as I have kept a cash account all through the four years, and I took these figures right from the book. Under 'Incidentals' I have included fraternity dues, athletic dues, theater, dances, carfare home and back at vacations, a few week-end trips, and other expenses, some of which have very little to do with strictly school expenses; but it is the money that I spent while at the W. P. I." And that is precisely what the anxious father and mother and the ambitious boy want to know.

The Catalogue paragraph, to which reference was made above, is as follows:

Tuition	$150.00
Laboratory fees	10.00
Board for forty weeks	160.00
Room, light, heat, etc.	80.00
Books	20.00
Incidentals	30.00
	$450.00

Drawing instruments will be bought the first year, at an expense ranging from $15 to $35, but these instruments can be used during the entire course and afterwards.

The students declare that this list omits some important items which inevitably figure in every Tech man's budget, while others are placed at far too low a figure. Attention, however, should be called to the fact that in this list no attempt is made to estimate any other expenses than those directly connected with the student's work at the Institute. But what do the actual facts of student expenditure show?

Laboratory fees are fairly represented at $10.00 a year. The students in the chemistry department averaged $22.73 a year, but this could be called to a certain extent, breakage charges, rather than fees; the other students averaged $10.32 a year.

Board is an item in which the high cost of living has produced a distinct effect within the past three years. The average weekly rate is $4.09.

For room, light and heat, only one in four paid as much as $80.00 a year.

Books and stationery ranged from $32 to $192.04. The average yearly expenditure was $25.82.

For drawing instruments the expense varies somewhat in the different departments; with civils it is exceptionally heavy; with chemists it is correspondingly light. The range was from 0 to 60, the average being $19.92.

The Catalogue list seems to follow the Scriptural injunction in implying that the student need take no thought wherewithal he shall be clothed. Clothing ranged from $920 down to $59.

"Incidentals" like charity, covers a multitude of things, in a college student's budget. The old story comes to mind of the English boarding-school boy whose mother, looking through his account book, was pleased to find the frequent entry of substantial sums against the letters "S. P. G.," and expressed her gratification that her son, in the midst of all his boyish cares and pleasures, was still contributing such large amounts from his allowance to the Society for Propagating the Gospel. The boy's sister kept silence, for the moment, but later cornered the youth and demanded the meaning of the mysterious letters. He confided to her that the true interpretation was, "Sundries, Probably Grub." And so it is with a number of things which are easily inserted under the head of "Incidentals."

What, then, is the normal expenditure at the W. P. I.? May "the average expense be kept below $450 a year?" The reply is that—when clothing, travel, athletic dues, and other

normal and inevitable things are included—not one student among the 65 kept his expenditure down to the level. Nor, under present conditions, is it reasonable to expect that it can be done.

About three fourths of the students came from a distance, and the average for these men per year was $616.39, and for the other fourth who lived at home, the average was $327.65.

So much for the answer as to how much does it cost, but now for the answer to how do they meet these costs.

Scholarship aid was received from the Institute by 26 out of the 64. With few exceptions full scholarships at the Institute carry $150, and until the past year, none were given out of the state. In general, the awards have been made in half-scholarships, that the larger number might share in their benefit. The sums reported as received by these 26 men during the course were as follows: four received $75 each; one $112.50; one $150; six $225; one $262.50; one $265; nine $300; one $315; and two $495.

Every man had a little money saved when he came to the Institute, and all worked during the vacation period and thus added to their saving. The required work at an engineering school is far more time-consuming and exacting than that of an average college. Nevertheless, 26 out of these 64—or 40 per cent.—reported earnings during term time.

The typical W. P. I. student, whom these statements of expenditures and earnings disclose, is a self-reliant fellow, who by his own experience has already learned both the value and the cost of a dollar and who knows that in the training of the successful engineer a most essential element is "work."

WHAT DOES IT COST TO ATTEND THE UNIVERSITY OF OKLAHOMA?

An investigation which was made at the close of school last June shows that student expenses at the University of Oklahoma are about as follows:

The average expenditure as shown by the 300 answers that

were received from the students was $343.33, the expense for women being slightly less than the expense for men. Although the average expense is about $343.00 many students spend more and a large number get through for $300.00, and a number for $275.00, $250.00, and even smaller amounts. Where several students go together and "batch," they are able to cut down their living expenses very materially.

The average cost of board and room for the nine months was $196.16, the board costing about $15.00 a month and the cost of room averaging a little over $6.00. Six dollars seems to be too high for room, as few students pay more than $5.00 or $6.00 a month. The average cost for clothing was $73.00; for books $19.53; for laundry $21.11; for fees $17.48; for dues, such as class and organization dues, $7.73; incidentals $34.56.

Nearly half of those who replied stated that they were earning money before entering the University. About 35 per cent. of the students who attend the University of Oklahoma are dependent upon themselves for their college expenses. Many of them borrow money in order to complete their college course and as a rule they find no difficulty in paying back the loan within a year or two after graduation.

COLLEGE AND UNIVERSITY NOTES.

Municipal University of Akron.—The new College of Engineering of the Municipal University of Akron opened on Monday, September 14, with an enrollment of thirty students. Mr. J. S. Mathewson, graduate of the coöperative course in mechanical engineering of the University of Cincinnati, has been appointed as instructor in the engineering college. Since graduation Mr. Mathewson has spent about one year in the Smoke Abatement Department of the City of Cincinnati and a year as instructor in the David Ranken Jr. School of Mechanical Trades in St. Louis. The College of Engineering is occupying the building formerly used as an Academy but

will probably require a new building in a year or two. $4,000 has been set aside for laboratory equipment and this will be purchased from time to time during the year 1915. The factories of the city have been very receptive toward the new course and were business normal in Akron no difficulty would be experienced in finding places in the shops for fifty or sixty students.

University of Arkansas.—Professor B. S. Blakeslee, of Highland Park College, Des Moines, Iowa, has been appointed assistant professor of electrical engineering. Associate Professor Olney resigned last June to accept a position as assistant electrical engineer for the Baltimore & Ohio Railway with headquarters at Baltimore, Md.

Carnegie Institute of Technology.—The electrical engineering department of the School of Applied Science is now installing a 200,000 volt, 100 K.V.A. transformer and auxiliary equipment for purposes of demonstration and tests in the regular course on high tension power transmission. The apparatus is being manufactured by the General Electric Company, and is already partly installed.—W. W. Strong, Ph.D., Johns Hopkins 1908, chief on smoke investigation at Mellon Institute from 1911 to 1913, has been appointed a faculty member in the department of physics. Dr. Strong was research assistant at Johns Hopkins from 1908 to 1911, and for several years has been interested in the manufacture of smoke prevention appliances. He will continue his investigation work at the Carnegie Institute, in coöperation with Director Hamerschlag, who is president of the Smoke Abatement League of Pittsburgh, and Professor Trinks, head of the department of mechanical engineering, who is a member of the advisory board to the City Bureau of Smoke Inspection.—New faculty appointments for 1914–15 in the School of Applied Science include: Allen H. Blaisdell, S.B., University of Maine, instructor in mechanical engineering; Meyer G. Gaba, S.B., S.M. and Ph.D., University of Chicago, instructor in mathematics; Robert N. Miller, B.A. and M.E., Lehigh, instructor in machine

design; Paul McCorkle, B.A., Ohio State University, assistant instructor in physics laboratory; Arthur Van Dych, Ph.B., Yale, instructor in electrical engineering and James B. Patterson, graduate assistant in mechanical laboratory.

Drexel Institute of Arts, Science and Industry.—The faculty changes this year are Hollis Godfrey, Sc.D., F.R.G.S., President; Arthur J. Rowland, Sc.D., Dean; Henry V. Gummere, M.A., Director of Evening Classes; Charles A. Ellis, assistant professor of civil engineering; Lero A. Wilson, assistant in the engineering experiment station in the department of mechanical engineering; Wm. H. Hyslop, assistant in physics; Charles F. Hill and Paul L. Bayley, as part-time assistants in physics; Harrison F. Gonnerman transferred to engineering experiment station as first assistant in the department of theoretical and applied mechanics; instructors: Edith Baer, B.S., senior instructor in domestic science, Caroline A. M. Hall, senior instructor in domestic arts, Katharine D. Brown, professor of engineering English, Elizabeth V. Clarke, librarian; Wm. D. Foster and Ralph S. Fanning, in architectural design; Wm. M. Stanton, architecture; Wm. S. Wolfe, architectural engineering; John W. Davis, electrical engineering; Horatio S. McDewell and Edwin Frank, mechanical engineering; Alfred C. Callen, mining engineering; and Wm. James Putnam, theoretical and applied mechanics; Jasper O. Draffin as research fellow in the engineering experiment station in the department of theoretical and applied mechanics; Walter A. Gatward, research fellow in the engineering experiment station in the department of electrical engineering; Thomas E. Laying, research fellow in the engineering experiment station in the department of chemistry; Lester C. Lichty, research fellow in the engineering experiment station of the department mechanical engineering; Wm. Penn Lukens, research fellow in the engineering station in the department of mechanical engineering; Everett G. Young, research fellow in the engineering station in the department of mechanical engineering.

Additional laboratories have been added to domestic science and arts, and the chemical laboratory has been enlarged.

The George Washington University.—The following appointments have been made: N. W. Dougherty, M.C.E., assistant professor of civil engineering; M. Mott-Smith, Ph.D., assistant professor of physics; Leonard S. Doren, instructor in civil engineering; Meade Bolton, instructor in architecture.

Georgia School of Technology.—A new power station and research laboratory will be erected during the current year. The building will cost $80,000, and the equipment which has already been donated by leading manufacturing concerns will represent an investment of over $100,000. The station will be complete in every detail not only for generating light, power, heat, etc., but will also be used for instruction purposes.

University of Illinois.—Herbert F. Moore, for the past seven years assistant professor in theoretical and applied mechanics, has been promoted to professor of engineering materials in the engineering experiment station. Professor J. M. Bryant, who has been a member of the staff of the department of electrical engineering of the University of Illinois since 1903, has been appointed professor of electrical engineering in charge of the department at the University of Texas. Professor J. I. Parcel, who for the past year has been assistant professor of structural engineering at the University of Illinois, has been appointed associate professor of structural engineering at the University of Minnesota.

State University of Iowa.—Professor S. M. Woodward has been given leave of absence for part of the year to assist in planning the flood prevention works at Dayton, Ohio. S. D. Chambers has been appointed assistant professor of mechanics and hydraulics during the leave of Professor Woodward. The following instructors have been appointed: A. H. Holt, Univ. of Vermont, civil engineering; M. A. Repass, Univ. of Iowa, mechanics and hydraulics; S. Simms, Portland, Ore., T. G. Caywood, Ohio State Univ., and H. S. Rogers, Univ. of Wyoming, descriptive geometry and drawing; Arthur V.

O'Brien, machine shop practice. A new foundry building has been erected during the summer and will be equipped at once. About $12,000 worth of new laboratory apparatus, mostly in the departments of mechanical and electrical engineering will be added during the year. Prof. B. P. Fleming, head of the department of mechanical engineering has a volume on "Pumping and Irrigation" coming from the Wiley press. Dean Raymond has rewritten his "Plane Surveying" which will appear this fall from the press of the American Book Co. in new pocket form. He has also completed the manuscript for his "Railroad Engineers' Field Book" which has been based on the decimal division of the degree and will be brought out during the year by the Wileys. Prof. John H. Dunlap, Prof. R. B. Kittredge and Prof. A. H. Ford have been collecting engineering data during the summer for the extension division of the University and have secured valuable information concerning water works plants, paving, and electric lighting plants which will be published during the year in the form of bulletins. Prof. B. J. Lambert has just designed a $50,000 concrete arch bridge to cross the Iowa River at Iowa City for which the contract has been let. Prof. F. G. Higbee has completed the manuscript for a new text on descriptive geometry.

University of Maine.—Registration occurred on September 16th and 17th, at which time 910 students were enrolled. Late registrations and the registration in the Law College which does not begin for another month will bring the total up to about 1,100. Of this number 35 per cent. are in the college of technology, which is chiefly made up of the engineering curricula. The technological faculty numbers 31. Prof. A. C. Jewett, head of the department of mechanical engineering, has been granted a years leave of abscence and at present is engaged in professional work. During his absence the department is in charge of Prof. C. H. Lekberg. The other changes in the faculty apply to instructors and are: Resigned, Mr. A. L. Pouleur, Mr. W. H. Nason, Mr. R. A. Pinkham, and Mr.

Charles B. Cleaves. Appointed: Chester E. Andrews, B.S., Syracuse University, 1913; M.S. 1914, chemistry, James J. Donegan, Ph.B., Yale University, 1909, and Harold E. Jenks, B.S., Worcester Polytechnic Institute, 1914, in civil engineering, Arthur W. Leighton, in mechanics and drawing, Arthur B. Leonard, M.E., Lehigh University, 1914, in mechanical engineering, and Timothy J. Connors, Jr., Pharm.D., Mass. College of Pharmacy, 1912, in pharmacy. The new science building, costing $75,000, is nearing completion. This building will house chemistry and physics and the room thus vacated will in a large measure be devoted to engineering. During the past year coöperation has been effected between the department of civil engineering and the State Highway Commission whereby our road materials testing laboratory has been completely remodeled and brought up to a high standard of efficiency. All of the state testing work is at present done in this laboratory under the direction of the department of civil engineering. Many other problems, such as investigation of culverts, bridges, and road materials survey of the state, etc., have been undertaken. The head of the department of civil engineering has been appointed consulting engineer on bridges to the Commission and it is expected that members of our faculty will coöperate with the new Public Utilities Commission which has just been apopinted.

Massachusetts Institute of Technology.—Professor R. H. Richards '68, emeritus, mining engineering and metallurgy, and Assistant Professor H. K. Burrison, '75, drawing and descriptive geometry, have retired. It is with regret that we record the death of Professor C. L. Adams, of the department of drawing and descriptive geometry. Prof. James Knox Taylor, architecture, and Prof. Harold Pender, electrical engineering and electrical research laboratory have resigned, the latter going to the University of Pennsylvania. Ralph Adams Cram has been appointed senior professor in the department of architecture and Professor Davis R. Dewey has taken charge of the new course (XV) entitled, "Engineering Ad-

ministration."—The work on the new building at the Cambridge site is progressing rapidly, and it is expected that two acres of buildings will be under roof by November first. Recent court decisions regarding the Boylston Street property make it desirable to retain certain departments at this location. The departments of architecture, mining engineering and metallurgy will occupy the Rogers & Walker Building. A feature of the construction was the pouring at one time of an entire acre of floor concrete. Two new features of the laboratory in Cambridge are the aerodynamic and the high tension group. The former is one of the divisions of the department of naval architecture and marine engineering, and is under the immediate charge of Lieutenant J. C. Hunsaker, who has recently inspected all of the important laboratories of this kind in Europe.

Miami University.—The building which is being constructed to house the chemistry department temporarily will be ready for occupancy January 1, 1915. Hilger wave-length spectroscope with photograph attachment, Leeds and Northrup Potentiometer, full set of apparatus for self-induction, precision volt and ampere-meter, Siemens and Halske make, are important additions to the laboratory.

University of Nebraska.—Mr. Ivan M. Kerlin, graduate of Purdue and lately with the Commonwealth Edison Company, of Chicago, has been appointed as instructor in electrical engineering to succeed R. W. Goddard, who resigned to take the position of assistant professor in the New Mexico A. & M. College. Mr. John Adendorff, graduate of the Transvaal University and also of Cornell, has been appointed instructor in machine shop. The question of university removal to the university farms *vs.* extension of the downtown campus is to be voted upon by the people of the state at the November election.

University of Oklahoma.—The following changes have been made in the faculty. Resignations: S. M. Barrett, professor of education; John Darling, professor of physical education;

Wm. Aitenhead, assistant professor of mechanical engineering; F. L. Weaver, instructor in civil engineering; W. A. Seavey, professor of law; J. L. Riley, instructor in physics; F. C. Kent, associate professor of mathematics; Agnes Berrigan, instructor in English; and R. P. Calvert, assistant professor of chemistry. Promotions: Dr. G. Y. Williams, professor of physical; R. T. House, professor of German; H. S. Browne, professor of materia medica; A. Steitz, M.A., Yale Univ., Ph.D., instructor in German; E. E. Dale, instructor in history; E. S. Porter, assistant professor of chemistry; H. H. Herbert, assistant professor of journalism; and F. B. Sorgatz, assistant professor of histology and pathology. Appointments: E. Berrigan, assistant in the extension department with rank of instructor; Elizabeth Church, A.M., Ph.D., adviser of women and assistant professor of English; and W. A. Schmidt, A.B., Ph.D., professor of education; Wm. H. Emig, of the Missouri Botanical Gardens, St. Louis, instructor in biology; A. R. Ramey, M.A., assistant professor of English; Harry B. Gossard, of Johns Hopkins University, instructor in mathematics; W. C. Allee, assistant professor of zoology; Grace Smith, catalogue clerk in the library with the rank of instructor; G. H. Smith, instructor in English; L. P. Wilson, J.D., professor of law; J. W. Madden, of Wisconsin, professor of law; Addie Maloy, B.A., Oklahoma, '14, instructor in physics; G. B. Treat, of Oklahoma City, instructor in civil engineering; E. F. Davis, instructor in shops; G. R. Soutar, of Wisconsin, physical director; and W. J. Woklenberg, assistant professor of mechanical engineering. The new heating, lighting and power plant, including the installation of lights, clocks, and telephones throughout the university has been completed. This plant is attached to the engineering building and has made possible the readjustment of the buildings and the extension of the laboratories. A new building to accommodate the work shops of the University is approaching completion. Edward J. Kunze, for four years assistant professor of mechanical engineering at Michigan Agricultural

College, has been appointed professor of mechanical engineering.

The Pennsylvania State College.—The additions to the faculty this year are: C. G. Grabe, instructor in electrical engineering, H. M. Armstrong, instructor in electro-chemical engineering, F. J. Blair, instructor in mechanics, J. F. Mattern, instructor in mechanical engineering, F. J. Lewis, assistant in civil engineering, G. S. Long, assistant in civil engineering, G. R. Maxson, teaching fellow in engineering, and R. B. Nesbit, assistant in civil engineering. Drawing and recitation rooms and an additional building for the school of engineering to provide quarters for electrical laboratories have been added this year.

Purdue University.—Prof. A. P. Jamison, who for many years has had charge of the mechanical drawing in the course in practical mechanics, has resigned to go into business. Prof. L. E. Endsley, professor of railway mechanical engineering, has left to take a similar position at the University of Pittsburgh. Professor L. W. Wallace has been appointed to take his place and also of the classes in industrial engineering. A department of highway engineering has been added to the school of civil engineering with Prof. G. E. Martin in charge. A certain coöperation has been secured between the university and the state authorities which will tend towards the inauguration of better roads. Prof. T. T. Eyre has returned from a year's leave of absence at Case School of Applied Science and has been made assistant professor of mechanical engineering. French has been recently made optional for certain engineering students in the place of German and Prof. James L. Cattell has been appointed associate professor of French. All modern languages are now under the charge of Prof. Herman Babson. In the gas engineering laboratory, a Diehl dynamometer for the testing of automobile engines has recently been installed. In addition to this, an automatic weighing device has been designed and built. This apparatus automatically records the time elapsed and the number of

revolutions of the engine for each five pounds of gasoline. It is proposed to make very exhaustive and accurate tests of the leading types of automobile motors. An important addition has been made in the hydraulic laboratory in the form of a large concrete conduit with accompanying reservoir. This is to be used principally for testing the effect of obstructions to the flow of water such as bridge piers, abutments, etc. It also permits of accurate tests on various types of weirs. A new belt-testing machine designed and built at the university is nearing completion. This involves a number of new principles in the measurement and recording of power.

Rutgers College.—Frederic F. Couch, M.E., instructor, has been made assistant professor of mechanical engineering, and Harry N. Lendall, B.S., instructor, has been made assistant professor of civil engineering.

University of Kentucky.—Thomas James Barr, hitherto instructor in mining machinery, has been elected to succeed H. D. Easton, resigned, as professor of mining engineering. J. W. Reed has been chosen as assistant inspector of mines. (By law, one of the assistant inspectors of mines for the state is named by the board of trustees of the State University.)

College of Applied Science, Syracuse University.—Louis Mitchell, assistant professor of civil engineering, having been granted a leave of absence for one year, is studying for an advanced degree at the Mass. Institute of Technology. Wm. E. Ninde, associate professor of mechanical engineering, having been granted the same leave of absence, is spending the time in commercial work. J. S. Northcott, assistant professor of applied mathematics, returns to Syracuse after a year spent in graduate work at Columbia University.

The Citadel, The Military College of S. C.—Dr. J. P. Kinard leaves the department of English language and literature, succeeded by Dr. Hugh S. McGillioray. A 7-inch equatorial telescope mounted in observatory with 15-foot revolving dome, two transits and two levels are new additions in the engineering department. Maj. R. G. Thomas, professor

of engineering, attended the Napier quadricentennial celebration in Edinburgh this summer.

University of Washington.—Mr. William F. Allison, M.Am.Soc.C.E., has been appointed professor of municipal and highway engineering at the University of Washington, to fill the vacancy caused by the resignation of Mr. E. J. McCaustland, M.Am.Soc.C.E., who goes to the University of Missouri as dean of the college of engineering. Prof. Allison holds degrees from South Dakota State College, Purdue University, and Cornell University. He served as engineer officer in the U. S. Volunteer Army in the Philippines during the Spanish-American War. In the meantime his attention has been divided between teaching and practice, including service as professor of civil engineering at the University of Oregon, and the Colorado School of Mines, and city engineer of Golden, Colorado. Mr. William E. Duckering has been appointed instructor in civil engineering at the University of Washington for the coming semester to take care of work caused by the leave of absence of Prof. C. W. Harris. Prof. Harris, whose specialty is hydraulic power, is devoting his attention to the development of small powers in the Cascade Mountains. Mr. Duckering, since his graduation from the University of Washington in 1903, has been with the Oregon Short Line Railway with headquarters at Pocatello, Idaho.

Agricultural and Mechanical College of Texas.—An academic building of brick and reinforced concrete has been added to the number of buildings, at a cost of $222,500. A Mess Hall also has been added of the same material at a cost of $110,000. The new men are: W. B. Bizzell, M.A., D.C.L., president, Rolland Adelsperger, B.A., B.S.A., A.I.A., professor of architecture and architectural engineering, C. B. Campbell, Ph.D., professor of modern languages, T. L. Kibler, M.A., Ph.D., professor of economics, James R. Hill, 2d Lieut., U.S.A., professor of military science, and Clarence Ousley, director of the extension service. An engineering experiment station has been established with D. W. Spence, C.E., pro-

fessor of civil engineering and dean of the school of engineering as the director. J. M. Bryant is now the head of the electrical engineering department.

Throop College of Technology.—The following appointments have been made: Arthur A. Noyes, Ph.D., LL.D., Sc.D., by part time arrangement with the Mass. Institute of Technology, as professor of general chemistry; Stuart J. Bates, Ph.D., University of Illinois, as professor of inorganic chemistry; Edward C. Barrett, B.A., University of Iowa, as lecturer in accounting and business law; A. W. Smith, M.D., University of Michigan, as physical director. The college has accepted the resignation of Professor Wm. R. Flint. The incoming freshman class was more than twice as large as a year ago, although entrance requirements have been stiffened, this class alone comprising more members than the entire student body when the college undertook its new departure as a distinct college of technology in September, 1910.

Tufts College.—Hermon Carey Bumpus, Ph.D., Sc.D., LL.D., business manager of the University of Wisconsin, has been elected president of Tufts. He will enter upon his active duties the latter part of the year. Dr. Bumpus received his education in the Boston public schools, at Harvard and Brown universities, and at Clark University, from which he received the degree of Ph.D. He has also been granted the honorary degrees of Sc.D., from Tufts and Brown, and LL.D., from Clark. He has taught biology at Olivet College, Mich., zoölogy and comparative anatomy at Brown University, and has served on the faculty of pure science at Columbia University. Besides his work as a teacher, he has served as an assistant director of the Marine Biological Laboratory; director of the laboratory of the U. S. Fish Commission at Woods Hole, R. I.; director of the American Museum of Natural History at New York City; and he is at present acting as business manager of the University of Wisconsin.

U. S. Bureau of Mines.—A building costing about $500,000, including mining, mechanical, chemical and full testing labo-

ratories and a power plant will be built on an eleven acre tract of land adjoining the Carnegie Institute of Technology in Pittsburgh. Prof. O. P. Hood is in charge of the mechanical engineering division of the Bureau and of the mechanical and fuel-testing laboratories of the Pittsburgh plant.

Worcester Polytechnic Institute.—The faculty changes are as follows: H. P. Fairfield promoted from instructor to assistant professor of machine construction, James D. Davis, instructor to assistant professor of mechanical drawing. The following instructors have been appointed: Farrington Daniels, chemistry; Arthur S. Crandon, civil engineering; J. A. Spaulding, German and French; and S. J. Plympton, physics. Mr. T. R. Briggs resigned to take an assistant professorship in chemistry at Cornell University. Prof. A. W. Hull resigned to take a position in the research laboratory of the General Electric Co. at Schenectady. Prof. J. H. Nelson is placed on leave of absence for one half year for special work in the Bureau of Standards at Washington. In the laboratories, some additions have been made of special importance to graduate students. In the mechanical engineering, a 10″ x 72″ motor-driven cylindrical grinder has been added and will serve for a great variety of work in the Washburn Shops. In the electrical laboratory, a number of additions have been made, the most important being a large quadrant electrometer for use as a wattmeter. The 500,000-volt transformer built in 1910 has been reconstructed for 600,000 volts or more. The largest air condenser in the country has been recently sent to the Institute. In the hydraulic laboratory, a great deal of small apparatus has been added, notably a variety of current meters on which work is being done. The Institute opens this year with a very slight gain of students on last year.

Lehigh University.—Stanley S. Seyfert, E.E., M.S., and Samuel R. Schealer, E.E., have been promoted to associate professors of electrical engineering. The following instructors have been appointed: H. D. Gruber, E.E., electrical engineering; J. L. Connor, E.E., electrical engineering; R. L. Fox,

C.E., civil engineering; G. E. M. Jauncey, B.S., physics; D. G. Thompson, A.B., A.M., geology; J. S. Irwin, B.S., geology; Ezra Bowen, B.S., economics; A. S. Callen, El.Met., assistant in metallurgy; J. S. Long, Ch.E., assistant in chemistry. The Taylor Gymnasium and Taylor Field House, the gift of C. L. Taylor, '76, of Pittsburgh, Pa., are new additions to the University.

Rensselaer Polytechnic Institute.—Mr. J. Robert, of University of Illinois, takes position of assistant in mechanical engineering, vice Mr. H. J. Klotz, who leaves to enter practice. The student branch of the A. S. M. E. is planning to make visits to various plants in the vicinity alternate Saturdays. These visits will be discussed at the meeting of the branch.

Clemson A. & M. College.—D. C. Lange, University of Penna., elected instructor in architectural engineering. An addition to the east wing of the engineering building has been begun. An addition of five rooms to the academic building has been completed. A $75,000 Y. M. C. A. building is to be begun January 1, 1915. Plans for a new hospital have been made. A 100-gallon single-stage centrifugal pump, directly connected to electric motor, has been added to the equipment of the mechanical laboratory. A number of instruments and apparatus has been added to the electrical laboratory. On account of the European war we have not been able to purchase some considerable apparatus which our board of trustees appropriated money for. Clemson gets most of her money from fertilizer taxes for the analysis of fertilizers. On account of the price of cotton it is likely that the fertilizer tax will be very small so that we will probably have a small amount of money to spend next year.

Stevens Institute of Technology.—The freshman class, the largest in the history of Stevens, numbers 178; this is an increase of 81 per cent. over last year's enrollment. Most of the extraordinary increase is due to the adoption of the new scheme of admitting students on certificates from the principals of approved high schools with four-year courses.

Ninety-one schools from thirteen states are represented by the matriculants. Mr. Calvin L. Coggins, B.S., instructor in physics, has resigned to accept an assistant professorship at the Rhode Island State College. Mr. Lawrence C. F. Horle, M.E., has been appointed assistant in physics.

University of Wisconsin.—The resignations of Juan D. Diaz, draftsman, and D. C. Faber, assistant professor of electrical engineering, have been accepted. C. C. Winn and H. E. Kranz have been appointed instructors and L. C. Straub, draftsman.

University of Pennsylvania.—Professor Harold Pender, late of the M. I. T., comes as head of the department of electrical engineering, which has been formerly allied with the mechanical engineering department. Clarence E. Clewell and Dr. Howard S. Trueblood have been added to the staff of electrical engineering department.

Tufts College.—Mr. Fred F. Piper, electrical engineer, has taken the place of Mr. Nathan D. Blair. R. R. Martel is a new instructor in civil engineering, and Charles F. Wiley, in mechanical engineering.

PERSONAL NOTES.

I think the best part of the Princeton meeting was the emphasis of the need for mathematic teachers and the teachers of other engineering subjects to understand and appreciate each other's problems, and their evident intention to do so. This should go a long way toward preventing the attitude of "shifting the blame" for unsatisfactory results and encouraging an attitude of mutual helpfulness.

I believe the meeting encouraged a similar feeling of mutual helpfulness and understanding between the secondary school teachers and college teachers.

(Signed) C. E. Haigler.

Social contact at meals was the best feature in my opinion. If possible to shorten walking distances at future meetings, I should consider that desirable. Hugo Diemer.

I was rather favorably impressed by the Princeton meeting of the S. P. E. E. I much appreciated the architectural treat offered by the location.

I think the most helpful thing about the meetings was the very frank discussions of some of the everyday problems which confront the teacher and engineer.

I think many members would be pleased to have the various committees achieve greater progress and arrive somewhere or quit.

ALLAN L. SMITH.

At the Princeton meeting I was only present two days and planned this time to be at the regular meetings rather than at social gatherings. But I was particularly impressed with the friendly spirit of the meeting—very different from that of any other meeting of the S. P. E. E. I have attended even when a reception committee was supposed to be on duty. I also very much appreciated the discussions which some papers drew forth.

ARTHUR J. ROWLAND.

Prof. Mann's address. It was to me by far the most constructive and invigorating of all the many interesting and instructive things of the session.

J. C. RALSTON.

The meetings were splendid.

The getting together of those interested from various angles in the same ultimate end and the matching of views not always in agreement is always invigorating.

The earnest, thoughtful and fruitful discussions of the papers presented were most interesting and helpful to me.

It is a privilege to meet and associate with the really alive and active men who attend the meetings of this useful Society.

WALTER J. RISLEY.

The Princeton meeting of the S. P. E. E. was the first meeting of the Society which I have attended so I have no basis of

comparison. I may say, however, that I found the meeting even more pleasant and instructive than I had anticipated. The meeting had the distinct advantage of being held in a small town where the members were almost necessarily thrown together during the hours the Society was not in session.

From a personal point of view, I would say that the most interesting and helpful part of the meeting was the opportunity afforded of meeting men of whom I had grown to like and respect from their meeting and of discussing with them matters of common interest.

I appreciated the system and dispatch with which the meetings were conducted and the general avoidance of the common error of overcrowding the program.

L. A. HAZELTINE.

APPLICATIONS FOR MEMBERSHIP.

BARNES, ARTHUR F., Dean of Engineering, New Mexico State College, State College, New Mexico.

CRANDALL, CARL, Instructor in Civil Engineering, Cornell University, Ithaca, N. Y.

EMRICK, PAUL S., Instructor in Electrical Engineering, Purdue University, Lafayette, Ind.

BARTON, ED. G. C., Member of Senate, University of Queensland, Brisbane, Queensland.

CHARLES SIMEON DENISON.

Professor Charles Simeon Denison was born at Gambier, Ohio, in 1849. He died July 31, 1913. When he was quite young the family moved to Lockport, N. Y., where he prepared for college. In 1868 he entered the University of Vermont, and there received the degrees of Bachelor of Science, Civil Engineer, Master of Science, and in 1907 his Alma Mater conferred the honorary degree of Doctor of Science upon him.

In 1872 he came to the University of Michigan as an instructor in engineering and drawing and since that time has proved himself a leader in the profession of teaching. He was

not yet twenty-three years of age when he became the real head of the department of drawing and held that position until his death—forty-one years. He is enshrined in the character of thousands, and leaves thousands to mourn his death. Professor Ziwet, his colleague, speaks of him in the following terms:

I have known Professor Denison somewhat more intimately only during the past fifteen years of his life. His long connection with the University and the part he had taken in establishing and developing the engineering courses had given him a very prominent position in the faculty of the engineering department. But his gentle, unassuming, and peace-loving nature kept him free from any appearance of undue self-assertion. In the faculty, as well as in the less formal discussions of the Standing Committee, his attitude was always one of conciliation. His loyalty to the engineering department and to the University as a whole was not prompted by personal ambition, but singly by that spirit of justice and fairmindedness which pervaded his whole nature.

Professor Denison's father was a professor of mathematics at Kenyon. He left there having accepted a call to Grace Church, Lockport, N. Y., where he remained for five years. He then returned to Kenyon, and it was during the latter part of his term there that he published his discussion of the Foucault pendulum for proving the rotation of the earth on its axis, very soon after Foucault had exhibited his experiment at the Pantheon at Paris, in February, 1851.

Professor Denison was a member of a great many societies but prominent among them is the Society for the Promotion of Engineering Education, of which Society he was a charter member. He took quite an interest in this Society, having written a paper on "Drawing for Engineering Students," and which will be found in Volume 1 of the *Proceedings* of the Society.

JOSEPH EDWARD STUBBS.

Joseph Edward Stubbs, D.D., LL.D., was born at Ashland, Ohio, March 19, 1850, and graduated from the Ashland High School in 1868. He entered the Ohio Wesleyan University at Delaware, O., in 1869, and in his sophomore year was made principal of the Delaware High School for the following term. For three years he held the position of tutor of Latin and Greek in the college department, to which he was elected by the faculty of the institution.

He graduated in 1873 from Ohio Wesleyan University, receiving the degree of Bachelor of Arts. The Master of Arts was conferred on him in 1876. From 1880 to 1886, Dr. Stubbs was city superintendent of schools at Ashland. In 1886 he was elected president of the Baldwin University at Bera, O. In 1892 he was granted a leave of absence of two years, and spent the time traveling in Europe studying German philosophy and literature in the University of Berlin. On his return, he was elected president of the College Association of Ohio and received the honorary degree of D.D. at German Wallace College in 1890.

He came to the University of Nevada as its president in 1895, in which capacity he was serving at the time of his sudden death. When Dr. Stubbs came to the University of Nevada, he found a faculty of eighteen persons and five buildings. Through his untiring efforts the faculty now numbers fifty and the buildings have increased to eighteen.

He has been a member of the Society for the Promotion of Engineering Education for seventeen years.

BOOKS RECEIVED.

Plane Trigonometry With Tables. By CLAUDE IRWIN PALMER. McGraw-Hill Book Co.

Formulas and Tables for Engineers. By PIERCE and CARVER. McGraw-Hill Book Co.

BOOK REVIEW.

"The Engineering Manual," published by the American Electric Railway Engineering Association, is now being distributed. This publication is a compilation of the Standards and Recommendations adopted by this Association and covers practically the entire field of electric railway engineering. The book is in loose-leaf form, and consists of 82 sections, fully illustrated with diagrams and working drawings. The loose-leaf form of the Manual has been adopted in order that the standards and recommendations may keep pace with such additions and alterations as are made at the yearly conventions of the Associations. Separate sections may be obtained. The price of the Manual to non-members of the Association is $3.00, Binders $1.00 extra.

POSITIONS OPEN.

Unless otherwise noted address communications care of the Secretary, Univ. of Pittsburgh, Pittsburgh, Pa., referring to the key number given.

805. Instructor in Machine Shop Practice for large university in Middle West. College man with practical experience preferred.